Report of Task Committee I
FIRE PERFORMANCE OF STRUCTURES

Date: 14 May 2007

Place: National Institute for Land and Infrastructure Management, Tsukuba, Japan

Attendees:	U.S. Side --	H. S. Lew (Acting Co-Chair)	NIST
		Stephen A. Cauffman (Acting Co-Chair)	NIST
	Japan Side --	Mamoru Kohno (Co-Chair)	NILIM
		Tomohiro Naruse	NILIM

1. Objective and Scope of Work

The objectives of work include:

(1) Increase the availability of technology for evaluating the methods of fire/structural interaction that will be used to improve the performance of structures under fire loads.

(2) Promote post disaster investigations of fires following natural and technological disasters that enhance the Panel's core competencies in structural fire technologies.

(3) Encourage the development and sharing of research findings among the world's researchers and practitioners on the behavior of structural systems to fires.

The scope of work includes:

(1) Plan and conduct workshops and cooperative research on topics that improve the understanding of fire growth and service life predictions of the performance of structural components to fire loading.

(2) Exchange data on the performance of structural systems and components to fires and related modeling and simulation analyses.

(3) Exchange information on technological developments, state-of-art and practice related to the control of fire spread in buildings.

(4) Exchange information on technological developments related to the performance of structures exposed to fires.

(5) Exchange data on large fire analysis from natural and technological disasters to accurately simulate fire initiation and growth in urban environments.

(6) Develop the technical bases to revise structural-fire related codes, standards, and practice.

2. Accomplishments

(1) Added new members to the U.S. side: Prof. Paul Des Jardin Department of Mechanical Engineering State University of New York at Buffalo, Prof. Jay Gore Associate Dean of Engineering for Research and Entrepreneurship Purdue University West Lafayette.

(2) Planning for a TC workshop continued. Dr. Gross and Dr. Kohno have exchanged information for holding a workshop

3. Future Plans

The future plans include:

(1) Hold a workshop on Fire Performance of Structures in Japan during next 12 months. TC-I will explore a feasible mode of the workshop from such as physical meeting, web-based cyber meeting, or telecommunication. Possible topics for the workshop include:

- Current status of performance-based fire safety engineering. Japanese and U.S. experiences.

- Next generation design requirements. Reconstruction of performance requirements, and available and needed performance verification techniques.
- Evaluation of fire performance of existing steel and reinforced concrete structures including reality of connections and their expected performance in fire.
- Validation of numerical analysis methods by detailed simulations or full-scale experiments.
- Simplified calculation methods for predicting fire performances.
- Egress requirements for people with disabilities.

(2) Share Task Committee findings with the international research community.

(3) Explore the feasibility of creating a bi-lateral survey team to investigate fire-structure damage after major natural/technological disaster.

4. Related Activities

Collaborations ongoing between U.S. (NIST) and Japan (BRI) in Fire Spread at the Wildland-Urban Interface. Several U.S. researchers visited BRI and conducted fire wind tunnel tests.

NIST leads the Proficiency Testing of gypsum/steel stud walls according to ASTM E 119/ISO 834. Four Japanese testing laboratories have joined the program. TC-I is interested in the program and is exchanging information with them.